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FEDERAL NON-DEFENSE EXPENDITURES: THEIR SHIFTING IMPACT ON THE REGIONAL DISTRIBUTION OF INCOME

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Background

Professor Murray L. Weidenbaum has developed a classification of Federal expenditures based on the idea that the end purposes of the various government spending programs should be the criterion for classification.[1] These end purposes of the Federal Government are fourfold: (1) to provide national security; (2) to promote public welfare; (3) to develop the nation's resources, both human and nonhuman; and (4) to operate the government.

The basis for the present study comes from two sources, the above division of expenditures by purpose and Mr. Weidenbaum's paper, Shifting the Composition of Government Spending: Implications for the Regional Distribution of Income.[2] While he places emphasis on the budgetary split between the defense and non-defense sectors for 1963, the present researcher deals exclusively with the division of nondefense expenditures between public welfare and economic development programs and their regional income effects over time.

More specifically, the purposes of this study are: (1) to identify which of the Federal expenditure programs listed below have a redistributional impact on geographic income and (2) to analyze this impact for selected years in the period 1948-1963.

Before moving on, the author believes it wise for the reader to understand and remember the following limitations of this study. The primary drawback is one common to all such research - the paper is centered on geographical distributions rather than on those of income classes within a region.[3] Thus since the study is of large regional aggregates, it can only hint at the specific income classes which are most affected by the Federal expenditures analyzed here. A second limitation is the lack of comprehensive geographical breakdowns of Federal expenditures. However, the programs which could be distributed regionally account for the bulk (over 90%) of both the development and welfare programs

for the period analyzed (see Table 1). Finally, there is no analysis of the Federal taxing process and its implications for the distribution of regional income. But, as Mr. Weidenbaum has stated, ". . . this study focuses not on the balance of federal revenues and expenditures in a given region, but on the implications of shifts in the composition of expenditures."[4]

Method

In the appendix of Federal Budgeting, Congress and the Federal Budget, Mr. Weidenbaum provides a breakdown of Federal expenditures by major purpose.[5] The present study makes use of parts of this classification, especially those pertaining to the public welfare and economic development purposes. However, this author's classification is not a duplicate of Mr. Weidenbaum's, primarily because of no available regional breakdown of many of the smaller Federal programs' expenditures; hence these programs are excluded. There is one substantive change, that being that the present author views the public health program as a development expenditure and not as a welfare one. This is mainly due to the fact that of the total public health expenditures, those that could be regionally allocated consisted entirely of funds spent on hospital construction, grants to the various National Institutes of Health, and the prevention and eradication of certain communicable diseases. Also, the present author agrees with Mr. Weidenbaum's classification of urban renewal and public housing programs as welfare expenditures. Although such programs might be considered of a developmental type, no study to date has shown the direct impact of these expenditures to be so.

The inability to allocate all of the relevant Federal expenditures due to the lack of regional data mentioned above is only one of several difficulties encountered. Another, as discussed by Selma Mushkin, is that there are several methods of distributing expenditures regionally.[6] A distinction exists between

TABLE 1

Classification of Welfare and Development Programs and Expenditures in Fiscal Year 1963

Public Welfare Programs

Program	Expenditure in 1963 (millions of dollars)	Comment
Life Insurance & Retirement Programs		
* Department of Health Education and Welfare (HEW)	14,534.0	OASDI system
* Veterans Administration (VA)	826.0	Nat'l Service Life Insurance
* Railroad Retirement Board	1,112.0	Railroad Retirement System
* Civil Service Commission	1,131.0	Gov't. employees retirement system
Unemployment Insurance		
* Department of Labor	3,815.0	Unemployment trust fund
Public Assistance		
* Department of HEW	2,867.1	Grants to states for public assistance
* V. A.	1,864.5	Pensions for veterans without service - connected disabilities
Assistance to school children		
* Department of Agriculture	265.0	School lunch program, Special Milk Program
Veterans Compensation		
* V. A.	1,864.5	Compensation for service - connected disabilities
Urban Housing and Facilities		
* Housing & Home Finance Agency	397.1	All, except urban Transportation
Miscellaneous Welfare		
Disaster Relief	30.8	All
Transitional Grants to Alaska	3.1	All
Department of HEW	20.0	Juvenile delinquency
Department of the Interior	195.0	Indian Welfare
Total: Welfare Programs	28,921.1	
Amount Distributed Regionally	27,628.0	
Percent of Total Distributed Regionally	95.6	

*Indicates whole or part of program distributed regionally that was included in this study.

TABLE 1

Classification of Welfare and Development Programs and Expenditures in Fiscal Year 1963

Economic Development Programs

Program	Expenditure in 1963 (millions of dollars)	Comment
Natural Resources		
* Department of Agriculture	498.0	Forest Service and Soil Conservation
* Department of Defense	1,071.8	Corps of Engineers (civilian)
* Department of the Interior	531.2	Bureau of Reclamation, Mineral Resources, Fish & Wildlife
TVA	53.4	All
Transportation Facilities		
* Department of Commerce	3,017.0	Highways
Department of the Interior	44.0	Indian Roads
* Federal Aviation Agency	726.3	All
Housing and Home Finance Agency	90.0	Urban Transportation
Health		
* Department of HEW	1,254.6	Public Health Service
Treasury Department	4.7	Narcotics Bureau
* VA	2,777.2	Veterans Medical Program
Education		
Department of Commerce	69.1	Standards, Geological Survey
* Department of HEW	721.3	Office of Education
* Department of Labor	64.0	Office of Manpower, Automation & Training
* National Science Foundation	206.4	Grants and Fellowships
* VA	91.1	Veterans Readjustment Benefits
Economic Regulation		
Department of Justice	29.0	Antitrust
CAB, FCC, FPC, FTC, ICC, NLRB, SEC	169.6	All
Total: Development Programs	11,418.7	
Amount Distributed Regionally	9,255.6	
Percent of Total Distributed Regionally	81.1%	
Grand Total: Development and Welfare	40,339.8	
Amount Distributed Regionally	36,883.6	
Percent of Grand Total Distributed Regionally	91.4%	

Source: Murray L. Weidenbaum, Congress and the Federal Budget, American Economic Press, 1965, pp. 96-99.
Statistics came from Annual Report of the Secretary of the Treasury on the State of the Finances, pp. 445-454, 470.

the place where a government check is received initially and the ultimate beneficiary of the payment. As an example, the benefits derived from a grant awarded to a National Institute of Health in Maryland for research into the causes of cancer are not exclusive to the residents of Maryland. In general, this problem can get thorny very quickly. However, because this paper is primarily concerned with the direct impact of certain Federal expenditures on the regional distribution of income, the author has allocated these spending programs according to the region where Federal outlays flow as dollar payments. In certain of the programs, such as unemployment compensation, the allocation resulting from the final beneficiary formula coincides (for the purposes of this paper) with the dollar-flow measure used here.

A third area of difficulty is in determining if there should be a program size cut-off and if so, at what point. There is such a cut-off in this paper since it eliminates any welfare or development program that did not allocate regionally fifty million dollars or more in fiscal year 1963. This is done for two reasons: (1) to eliminate the smaller programs that may not have existed in 1948, and (2) to eliminate the programs for which there is no geographic breakdown of spending in all of the four time periods studied. The last problem concerns the decision to use the latest regional classification of the Office of Business Economics (OBE) of the Department of Commerce and not some other method. This regional grouping is employed because it is ... "based primarily on homogeneity of States as studied from 3 standpoints: (1) income characteristics; (2) industrial composition of the employed labor force in 1950 (which served as a check upon the income composition analysis); and (3) 'noneconomic' characteristics of the States."[7] (See Table 2 for the states included in each region).

The question now arises as to how the different Federal programs are placed in their respective categories. A public welfare program is defined to be one

TABLE 2

Classification of Regions

Region	States Included
1. New England	Maine, New Hampshire, Vermont, Rhode Island, Massachusetts, Connecticut
2. Mideast	New York, New Jersey, Pennsylvania, Maryland, Delaware, District of Columbia
3. Great Lakes	Michigan, Ohio, Indiana, Illinois, Wisconsin
4. Plains	Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas
5. Southeast	Virginia, West Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Louisiana, Mississippi, Arkansas
6. Southwest	Oklahoma, Texas, New Mexico, Arizona
7. Rocky Mountains	Montana, Idaho, Wyoming, Colorado, Utah
8. Far West	Washington, Oregon, Nevada, California, Alaska, Hawaii

Source: Office of Business Economics of the Department of Commerce, "Personal Income by State", A Supplement to the Survey of Current Business, 1956.

which provides additional income or benefits to certain people or groups of people by the government in the current period. In other words, welfare expenditures are transfer payments, in income or in kind. The economic development programs are those which make provision for one or more of the following: (1) the educational and health needs of the population; (2) the development of natural resources; or (3) the development of adequate transportation facilities.[8] More generally, the development programs are investment expenditures with the payoff coming some time in the future.

Regional population, regional personal income, geographical distribution of Federal spending and the regions themselves comprise the components of the study.

This study borrows further from Mr. Weidenbaum's research and makes use of his tripartite categorization of the eight regions into high, average, or low income regions.

Table 3 compares the percent of national population with the percent of personal income for the eight regions for the years 1963 and 1948. The ratio of the share of personal income to share of national population for the low income regions is significantly less than one, meaning that they receive a less than proportionate share of personal income than their population share might otherwise indicate. The ratio for the average income areas approximately equals one, indicating roughly equal shares of income and population. Finally, the high income regions' ratio is well above one, meaning that these regions receive income shares considerably higher than their population importance. Note, also, that all the ratios from 1948 to 1963 are tending toward the value of one, indicating that over time, personal income is becoming more equally distributed in accordance with the regions' population. As stated before, it is the purpose of this study to analyze the impact of certain Federal programs concerning the redistribution of regional income outlined in Table 3.

TABLE 3

Regional Comparison of Shares of Population and Personal Income for the Years 1948 and 1963

Region	1963 Share of National Population	1963 Share of Personal Income	1948 Share of National Population	1948 Share of Personal Income
High Income	34.0	39.4	31.9	37.5
Far West	12.6	14.8	9.5	11.5
Mideast	21.4	24.6	22.4	26.0
Average Income	36.3	37.7	38.3	41.2
New England	5.8	6.5	6.3	6.8
Great Lakes	19.8	21.0	20.4	22.9
Plains	8.3	7.9	9.3	9.3
Rocky Mountains	2.4	2.3	2.3	2.2
Low Income	29.7	22.9	29.7	21.3
Southwest	8.0	6.8	7.6	6.2
Southeast	21.7	16.1	22.1	15.1

	1963 Share of Personal Income / Share of National Population	1948 Share of Personal Income / Share of National Population
High Income	1.1588	1.1755
Average Income	1.0385	1.0757
Low Income	0.7710	0.7171

Source: 1963: Murray L. Weidenbaum, Shifting . . . Income, p. 5.

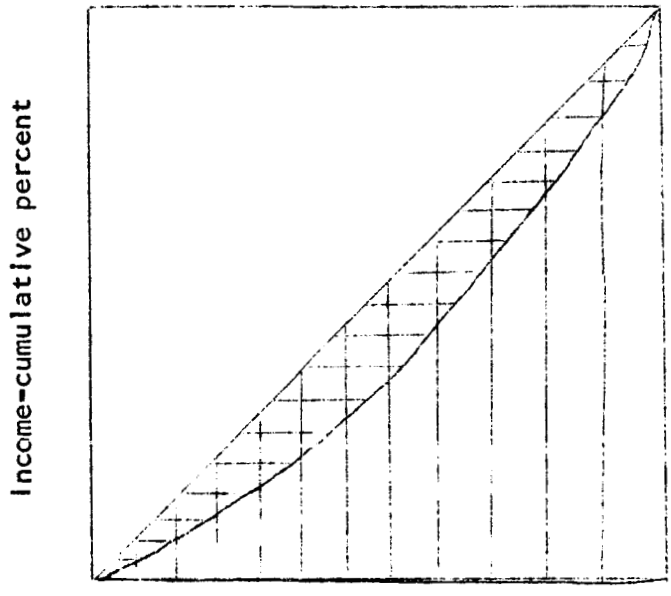
1948: Personal Income by States, A Supplement to the Survey of Current Business, Office of Business Economics, 1956. Tables 1, 2, and 3, pp. 140-145.

To aid in the analysis several statistical measures of relative equality between the expenditure and income series are used. The first such measure has already been employed, i.e., the simple percentage shares of income and population for each region. These shares, when put into the proper ratio indicate that there is inequality in any one year and also that this inequality is being reduced through the years.

The Lorenz curve focuses attention on the visual conception of the overall equality or lack of it of the government expenditures. On the horizontal axis, the eight regions are ranked in ascending order of average per capita income, each region occupying a length of the axis equal to its percentage of the total population. On the vertical axis, each region's share of the Federal program is plotted. What the Lorenz curve shows is that if any segment of the curve has a slope greater than the 45° ray from the origin (this 45° ray represents perfect equality - 20% of the population receive 20% of, say, national income, etc.) then the region corresponding to this segment receives a greater than proportionate share of income relative to its population. If, however, the segment of the curve has a slope less than the 45° line, the region's share of income is less than proportionate to its population. Finally if the slopes of the 45° line and the Lorenz curve are equal then the region's population receives a proportionate share of the national personal income.

A numerical estimate of the relative equality of a distribution is one which is closely allied with the Lorenz curve, this being the Gini coefficient.[9] The coefficient represents the ratio of the area between the Lorenz curve and the 45° line to the area under the line of equality. In the diagram on the next page it is the cross-hatched area divided by the total area beneath the 45° diagonal. The Gini's value can range from +1 to -1, $\pm$ being perfect inequality and 0 being perfect equality. The Gini coefficient has one drawback - it does not show the pattern of the distribution of the Federal program among the regions.

RELATIONSHIP BETWEEN THE GINI COEFFICIENT AND THE LORENZ CURVE



Therefore it is quite possible to have two coefficients with the same numerical value but with quite different Lorenz curves (remembering of course that Lorenz curves can go above as well as below the 45° ray). Because of this limitation, it is a good policy to use both the curve and the coefficient together. Because the present author does not wish to make this paper overly cumbersome, he deletes the individual program Lorenz curves but includes the aggregate ones for the welfare and development expenditures. Also several programs were selected randomly and were plotted to check the validity of the Gini coefficient.

The sign that is in front of the coefficient is very important. A positive sign indicates that most or all of the area between the Lorenz curve and the 45° line is below the 45° ray. Thus a Federal expenditure program with a positive coefficient results from above-average program shares going to high income regions. Such a program can be called regressive since high income regions receive a larger than proportional share of the expenditures. The opposite obtains if the

Gini coefficient is negative, i.e., the low income regions' population receive a larger than proportionate share of the Federal program. Programs with negative coefficients are thus progressive. The use of the terms "progressive" and "regressive" in evaluating a Federal spending program is not meant to convey a connotation of one program being "more just" than another. This would open the door to value judgments, and the author wishes to remain free of such bias.

The final section pertaining to the method employed in this research concerns the time period analyzed. Four benchmark years 1948, 1953, 1958, and 1963 are selected. Thus the study is not of a time series type, where there are observations at many points of time of a given economic unit, but a cross sectional analysis where the observations are taken over many economic units at a given point in time. However, by utilizing four time periods over the years 1948-1963, the paper tries to give the reader some flavor as to the current trends in Federal government expenditures on welfare and development. Finally all data is on a fiscal year basis.

Analysis

Implicit in the research of this paper is the belief that Federal government expenditure policy is one of the significant variables in the model determining regional income distribution. In other words when the government shifts expenditures from one type of program to another, one of the fall-out effects may be a redistribution of geographic income.

Altering the relative income positions of the regions through changes in Federal spending is the result of two factors: (1) the direct effect of an infusion or reversal of Federal funds on the level of income in the affected regions and (2) the indirect or long-run effect due to the working of the regional income multipliers. The current study is concerned only with the first

of these. More specifically it is trying to show which non-defense expenditure programs are the most significant with respect to the spatial distribution of income. With this accomplished it then attempts to study these programs over a period of fifteen years to see what trends emerge. It is this author's opinion that these objectives are best fulfilled through the testing of two hypotheses.

The first a priori hypothesis concerns the relationship between development and welfare expenditures and the regional income distribution.

Hypothesis I: Development programs at any point in time are progressive and hence equalize regional income.

This means that development expenditures allocate a larger than proportionate share of the spending to the low income regions. The exact opposite relationship is hypothesized concerning welfare programs, i.e. they tend to be progressive at any point in time. The reasoning is as follows: if regions of low per capita income are economically underdeveloped relative to higher income areas and since development programs are those that attempt to raise education and health benefits and develop resources and transportation to certain national minimum levels, then the low income regions will receive a larger than proportionate share of the program. Similarly welfare programs are thought to be regressive mainly because of the heavy weight given to the various Federal insurance programs, the recipients of which, to a large extent are unequally distributed geographically in favor of the high income regions. An example is the unemployment compensation program which is heavily biased toward the industrialized regions, i.e. the high income regions.

The data support this first hypothesis. Table 4 presents a listing of the programs with the relevant Gini coefficients for the four benchmark years. Notice that for 'Total: Development Programs' the Gini coefficient is negative in every year except 1948 thereby substantiating that development programs are progressive.

TABLE 4

Concentration of Welfare and Development Programs as Shown by Gini Coefficients

Program	Gini Coeff. 1963	Gini Coeff. 1958	Gini Coeff. 1953	Gini Coeff. 1948
* Personal Income	+.090	+.107	+.116	+.119
* Total: All Programs	+.013	+.070	+.034	+.067
* Total: Welfare Programs	+.016	+.097	+.090	+.104
*W Unemployment Insurance	+.252	+.227	+.276	+.376
*W OASI Insurance	+.048	+.093	+.167	+.188
*W National Service Life	+.004	+.022	+.014	+.038
*W Veterans: Compensation and Pensions	-.035	+.009	+.003	+.039
*W Public Assistance[1]	-.061	-.050	-.052	-.001
*W Railroad Retirement	-.026	+.008	+.028	+.075
W Civil Service Commission Retirement	+.058	+.016	+.135	-.135
W Housing and Home Finance Agency[2]	+.064	+.072	+.040	-.008
W School Lunch Program	-.177	-.176	-.195	-.190
* Total: Development Programs	-.032	-.002	-.032	+.058
*D National Science Foundation	+.189	+.256		
*D Forest Service	+.129	+.169	+.171	+.183
*D Dept. of the Interior[3]	+.101	+.047	+.064	+.084
D Public Health Service[4]	+.052	+.004	-.116	-.080
D Education[5]	-.021	-.017	-.117	-.101
D Highways	-.048	-.005	-.047	-.145
*D Corps of Engineers	-.046	+.094	+.167	-.086
*D Federal Airport Program	-.116	+.077	+.008	+.049
*D Bur. of Reclamation	-.028	-.006	-.003	+.014
*D Veterans: Medical Program	-.017	+.014	-.006	+.001
*D Experiment Stations, Soil Conservation	-.300	-.258	-.253	-.182
D Veterans: Readjust. Benefits	-.034	-.061	-.133	-.018

TABLE 4
(continued)

[1]Includes: Bureau of Family Services and Children's Bureau

[2]Includes: Urban Renewal Program; Urban Planning Assistance; and Low-rent Public Housing Program

[3]Includes: Federal aid in wildlife restoration and fish restoration and management; payments from receipts under Mineral Leasing Act

[4]Includes: Control of venereal diseases, tuberculosis, community health practice and research, mental health activities, National Institutes of Health, chronic diseases and health of the aged, hospital construction, and grants and fellowships to individuals within the states

[5]Includes: Aid to colleges of agriculture and mechanical arts, cooperative vocational education, assistance for school construction and maintenance, aid for library services, and grants and fellowships to persons within the states

*Indicates program has become more progressive (or less regressive), the requirement being that the positive Gini coefficients for any program decreased in 3 of the 4 time periods (programs with negative Gini's must increase in 3 of the 4 time periods).

Notice also that the Gini coefficients for 'Total: All Welfare Programs' are all positive, indicating regressiveness in each year.

Additional evidence can be found in Table 5. Here the ratios of Federal expenditure shares to population shares are the important figures to focus attention upon. If these ratios are greater than one in a region, then that region receives a greater than proportionate share of the program expenditure in regard to its population share. Since for development programs the fractions are all greater than one for low income areas, this supports the conclusion that this type of expenditure is progressive in any given year excepting 1948. Likewise the value of the ratios concerning welfare expenditure shares are all greater than one for high income areas and less than one for low income regions. They thereby display a regressive nature for each time period.

Hypothesis II: Development programs, welfare programs and the combination of the two equalize regional income over time.

The information contained in Tables 4 and 6 tend to support this generalization. For the programs to have a direct relation with the movements in the spatial income distribution over the period 1948-1963, the great majority of them would either have to (1) increase negatively, showing greater progressivity or (2) decrease positively. This condition is necessary but not sufficient because it would have to hold for at least three of the four time periods (otherwise the data support either the opposite hypothesis or no hypothesis, i.e. a random occurrence). In Table 4 asterisks distinguish the programs that meet both of these requirements. In toto the programs are becoming more progressive or less regressive and hence are having an equalizing influence on the regional income distribution.

Table 6 shows much the same phenomena while also revealing which programs were regressive or progressive in each year. Finally Figures 1, 2, and 3 confirm graphically what the Gini coefficients reveal mathematically.

TABLE 5

Relative Shares of Welfare and Development Programs With Regard to Regional Population for Selected Regions and Years

	1963	1958	1953	1948
High Income Region's Development Expenditure Share	31.8	32.2	31.0	37.0
High Income Region's Population Share	34.0	32.7	32.3	31.9
Low Income Region's Development Expenditure Share	30.0	30.2	33.7	30.4
Low Income Region's Population Share	29.7	29.6	29.6	29.7
High Income Region's Welfare Expenditure Share	36.6	36.7	36.8	37.3
High Income Region's Population Share	34.0	32.7	32.3	31.9
Low Income Region's Welfare Expenditure Share	26.3	24.4	26.0	24.7
Low Income Region's Population Share	29.7	29.6	29.6	29.7
$\frac{\text{Development Expenditure Share of High Income Regions}}{\text{High Income Region's Population Share}}$	= .935	= .984	= .959	= 1.159
$\frac{\text{Development Expenditure Share of Low Income Regions}}{\text{Low Income Region's Population Share}}$	=1.010	= 1.020	= 1.138	= 1.023
$\frac{\text{Welfare Expenditure Share of High Income Regions}}{\text{High Income Region's Population Share}}$	=1.076	= 1.122	= 1.139	= 1.169
$\frac{\text{Welfare Expenditure Share of Low Income Region}}{\text{Low Income Region's Population Share}}$	= .885	= .824	= .878	= .831

TABLE 6

Ranking of Federal Expenditure Programs by Gini Coefficients, 1948, 1953, 1958, 1963

Increasing Regressiveness ↓

Progressive	Gini Coefficient 1963
D Experiment Stations & Soil Conservation	-.300
W School Lunch Program	-.177
D Federal Airport Program	-.116
W Public Assistance	-.061
D Corps of Engineers	-.046
D Highway Program	-.048
W Veterans: Compensation and Pensions	-.035
D Veterans: Readjustment Benefits	-.034
D Bureau of Reclamation	-.028
W Railroad Retirement Program	-.026
D Veterans: Medical Program	-.017
Regressive	
W Nat'l. Service Life Insurance	+.004
D Education	+.021
W OASI Insurance	+.048
D Public Health Service	+.052
W Civil Service Retirement	+.058
W Housing and Home Finance Agency	+.064
* Personal Income	+.090
D Dept. of the Interior	+.101
D Forest Service	+.129
D Nat'l. Science Foundation	+.189
W Unemployment Insurance	+.252

Progressive	Gini Coefficient 1958
D Experiment Stations & Soil Conservation	-.258
W School Lunch Program	-.176
D Veterans: Readjustment Benefits	-.061
W Public Assistance	-.050
D Education	-.017
D Highway Program	-.005
D Bureau of Reclamation	-.005
Regressive	
D Public Health Service	+.004
W Railroad Retirement	+.008
W Veterans: Compensation and Pensions	+.009
D Veterans: Medical Program	+.014
W Nat'l. Service Life Insurance	+.022
D Dept. of the Interior	+.047
W Housing and Home Finance Agency	+.072
D Federal Airport Program	+.077
W OASI Insurance	+.093
D Corps of Engineers	+.094
W Civil Service Retirement	+.106
* Personal Income	+.107
D Forest Service	+.169
W Unemployment Insurance	+.227
D Nat'l. Science Foundation	+.256

TABLE 6

Ranking of Federal Expenditure Programs by Gini Coefficients, 1948, 1953, 1958, 1963

Progressive	Gini Coefficient 1953	Progressive	Gini Coefficient 1948
D Experiment Stations & Soil Conservation	-.253	W School Lunch Program	-.190
W School Lunch Program	-.195	D Experiment Stations & Soil Conservation	-.182
D Veterans: Readjustment Benefits	-.133	D Highway Program	-.145
D Education	-.119	D Education	-.101
D Public Health Service	-.116	D Corps of Engineers	-.086
W Public Assistance	-.052	D Public Health Service	-.080
D Highway Program	-.047	D Veterans: Readjustment Benefits	-.018
D Veterans: Medical Program	-.006	W Housing and Home Finance Agency	-.008
D Bureau of Reclamation	-.003	W Public Assistance	-.001
Regressive		**Regressive**	
W Veterans: Compensation and Pensions	+.003	D Veterans: Medical Program	+.001
D Federal Airport Program	+.008	D Bureau of Reclamation	+.014
W Nat'l. Service Life Insurance	+.014	W Nat'l. Service Life Insur.	+.038
W Railroad Retirement	+.028	W Veterans: Compensation and Pensions	+.039
W Housing and Home Finance Agency	+.040	D Federal Airport Program	+.049
D Dept. of the Interior	+.064	W Railroad Retirement	+.075
* Personal Income	+.116	D Dept. of the Interior	+.084
W Civil Service Retirement	+.135	* Personal Income	+.119
D Corps of Engineers	+.167	W Civil Service Retirement	+.135
W OASI Insurance	+.167	D Forest Service	+.183
D Forest Service	+.171	W OASI Insurance	+.188
W Unemployment Insurance	+.276	W Unemployment Insurance	+.376

Conclusions

Two hypotheses have been presented and supported. The first stated that at a given point in time development expenditures equalize regional income differentials while the opposite result holds for welfare programs. This fact points to specific policy directives if one of the prime goals of the Federal government is to bring about a change in the geographic distribution of income. It has also been found that over time certain types of non-defense Federal expenditure programs are narrowing the regional income gaps. This also points to certain Federal policies. It is the belief of this researcher that there is no conscious effort on the part of the Federal government to redistribute regional income. But this is one of the side effects of the expenditure programs that must be weighed by Congress when there is to be a change in Federal spending.

Appendix

The Net Effect of Government

Professor Weidenbaum has shown, defense expenditures are quite regressive (note that in 1963 a Gini coefficient of +.232 for defense procurement).[10] Also the trend of defense purchases has been towards more regressiveness (a Gini coefficient of +.199 for 1948 and +.232 for 1963).[11] There appears to be a dilemma:

(1) since the geographical distribution of personal income is becoming more equal in accordance with the population distribution, and

(2) since development and welfare programs are aiding this trend in per capita personal income but

(3) since defense purchases are retarding the trend

(4) what is the net effect of the Federal Government's expenditures on the redistribution of regional income?

This question appears to be answered in favor of the Federal expenditures having a negative net impact on regional income redistribution. The primary reason for this is that defense purchases have much higher absolute coefficients than the total of the welfare and development programs. Also since the Gini coefficients are derived by weighting programs according to their absolute amounts of expenditure, the defense programs' coefficient is the more significant one since defense expenditures account for the largest single item of the Federal budget.

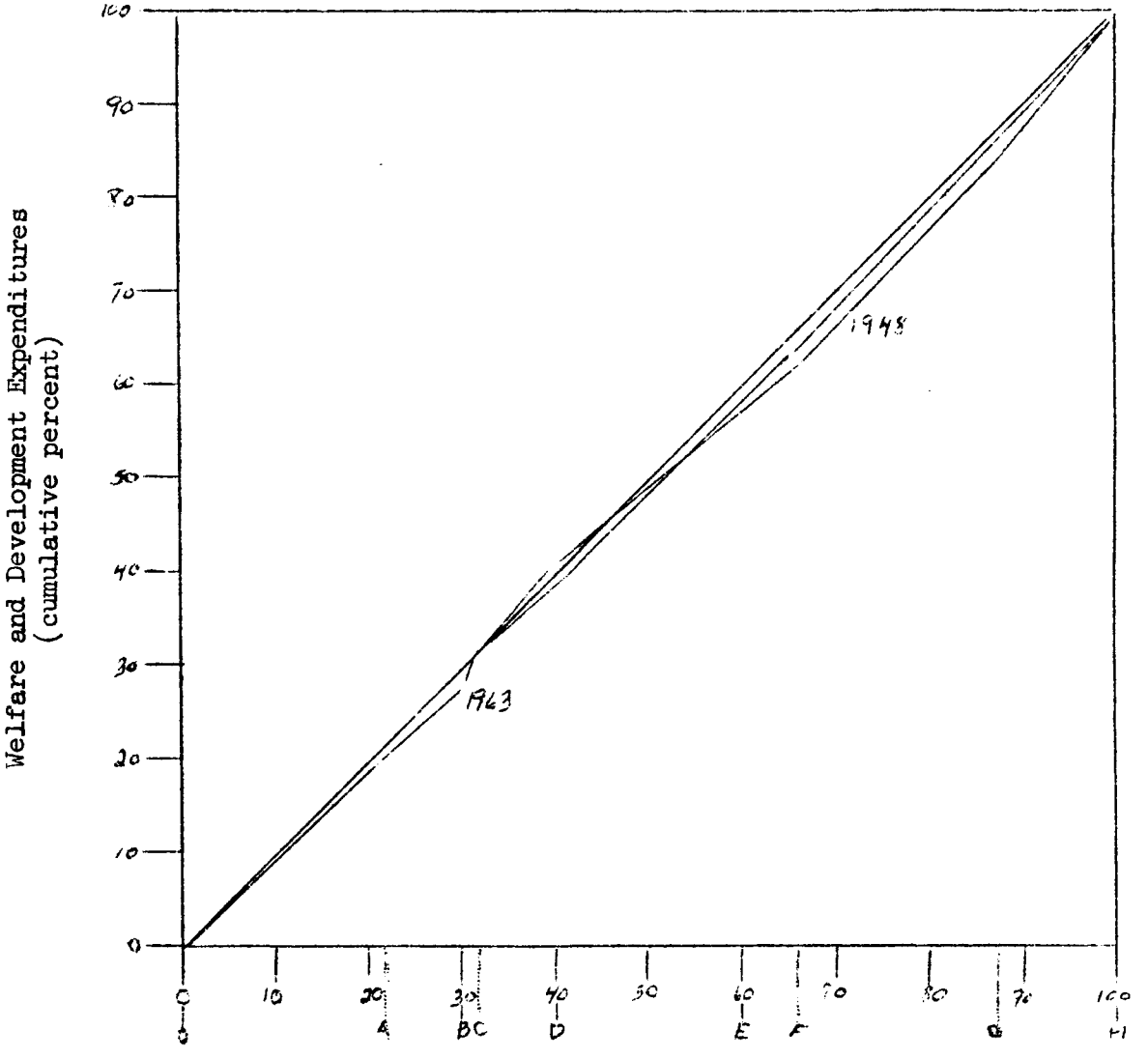
However since the defense component measured by Professor Weidenbaum and Mr. Liu includes prime defense and space contract awards to states, the Gini coefficients may be somewhat biased in favor of the high income areas. This bias occurs mainly because (1) these areas are typically characterized by a large defense and/or space establishment and (2) there are no comprehensive data on

the extent of subcontracting the prime awards. It is estimated that approximately 50% of the prime contracts are subcontracted.[12] However, because of the lack of any comprehensive geographic distribution of subcontract awards, prime awards must serve as the proxy measure of the defense component.

In light of the foregoing, more research is required before a definitive answer can be given concerning the net impact of Federal Government expenditures on redistributing regional income. The lines along which this research may follow are set forth in Dr. Weidenbaum's paper and are followed further in the present paper, i.e., more importance is attached to the sectors of the Federal budget than to the budget as a whole. By dividing the quite complex Federal budget into more manageable parts, a much more penetrating analysis can be presented. It is hoped that further research in this field will continue to follow and broaden the approach presented here.

Figure 1

Regional Distribution of Welfare and Development Programs for 1963 and 1948



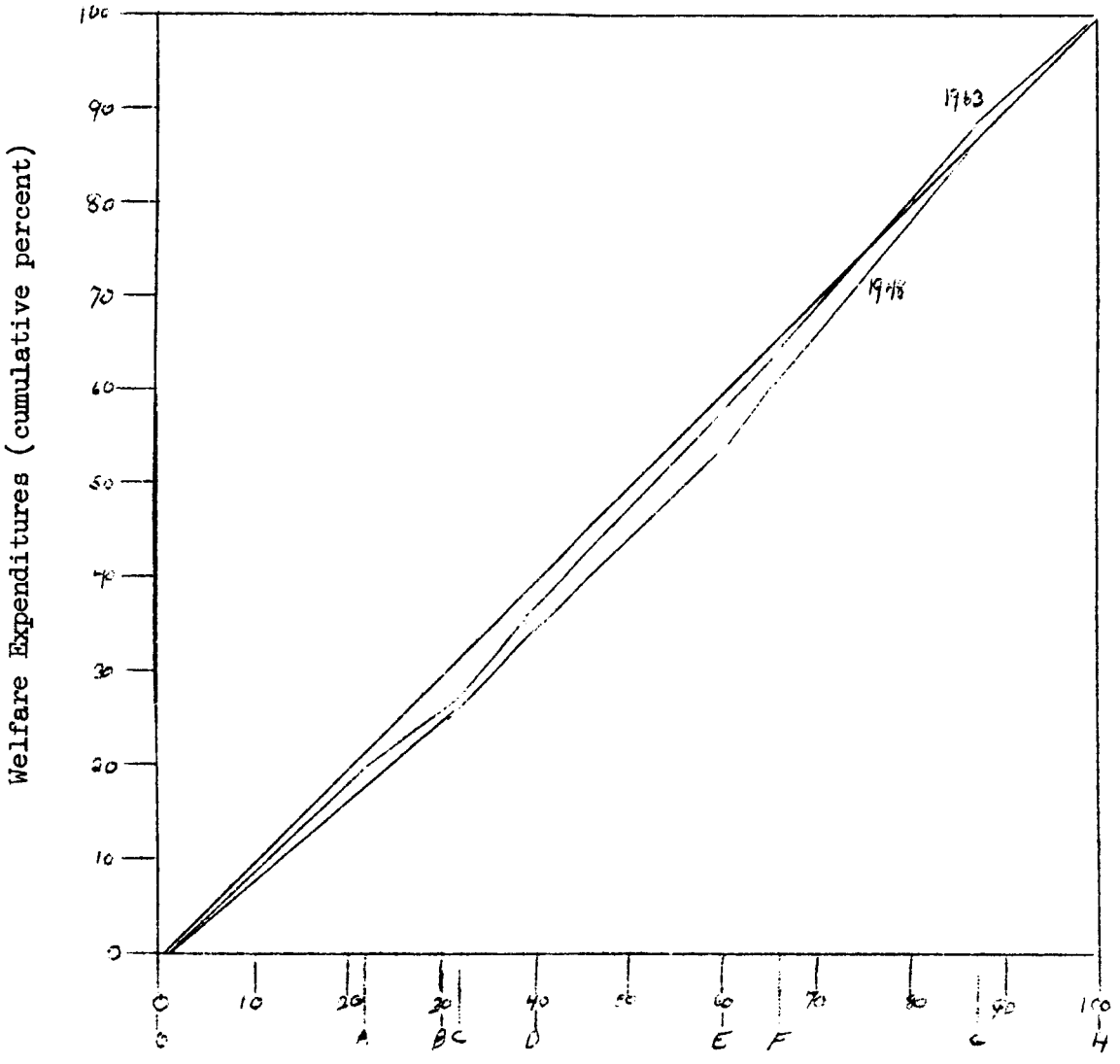
Income Regions (cumulative percent)

OA - Southeast	DE - Great Lakes
AB - Southwest	EF - New England
BC - Rocky Mountains	FG - Mideast
CD - Plains	GH - Far west

Figure 2

Regional Distribution of Welfare Programs

for 1963 and 1948



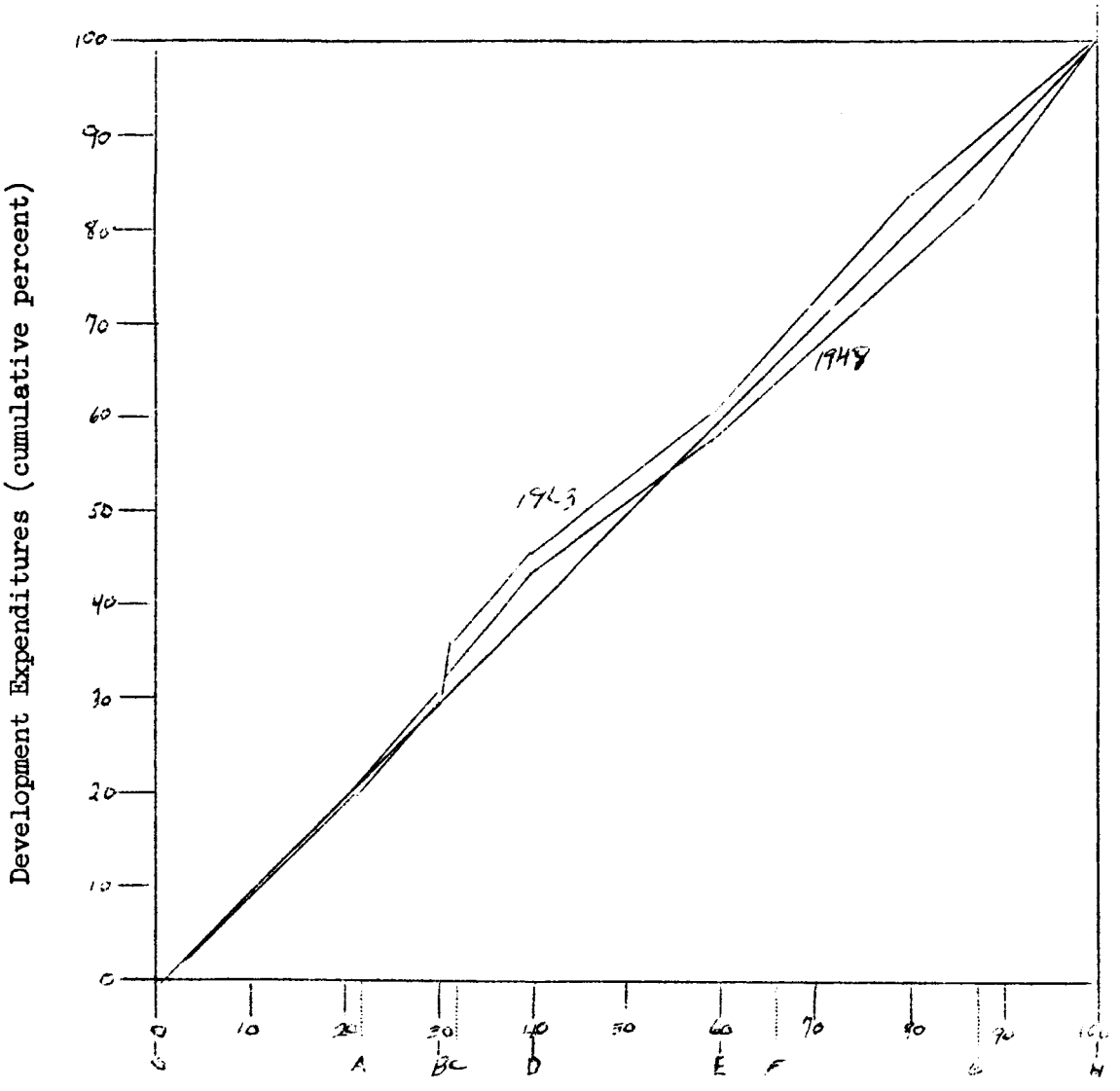
Income Regions (cumulative percent)

OA - Southeast	DE - Great Lakes
AB - Southwest	EF - New England
BC - Rocky Mountains	FG - Mideast
CD - Plains	GH - Far west

Figure 3

Regional Distribution of Development Programs

for 1963 and 1948



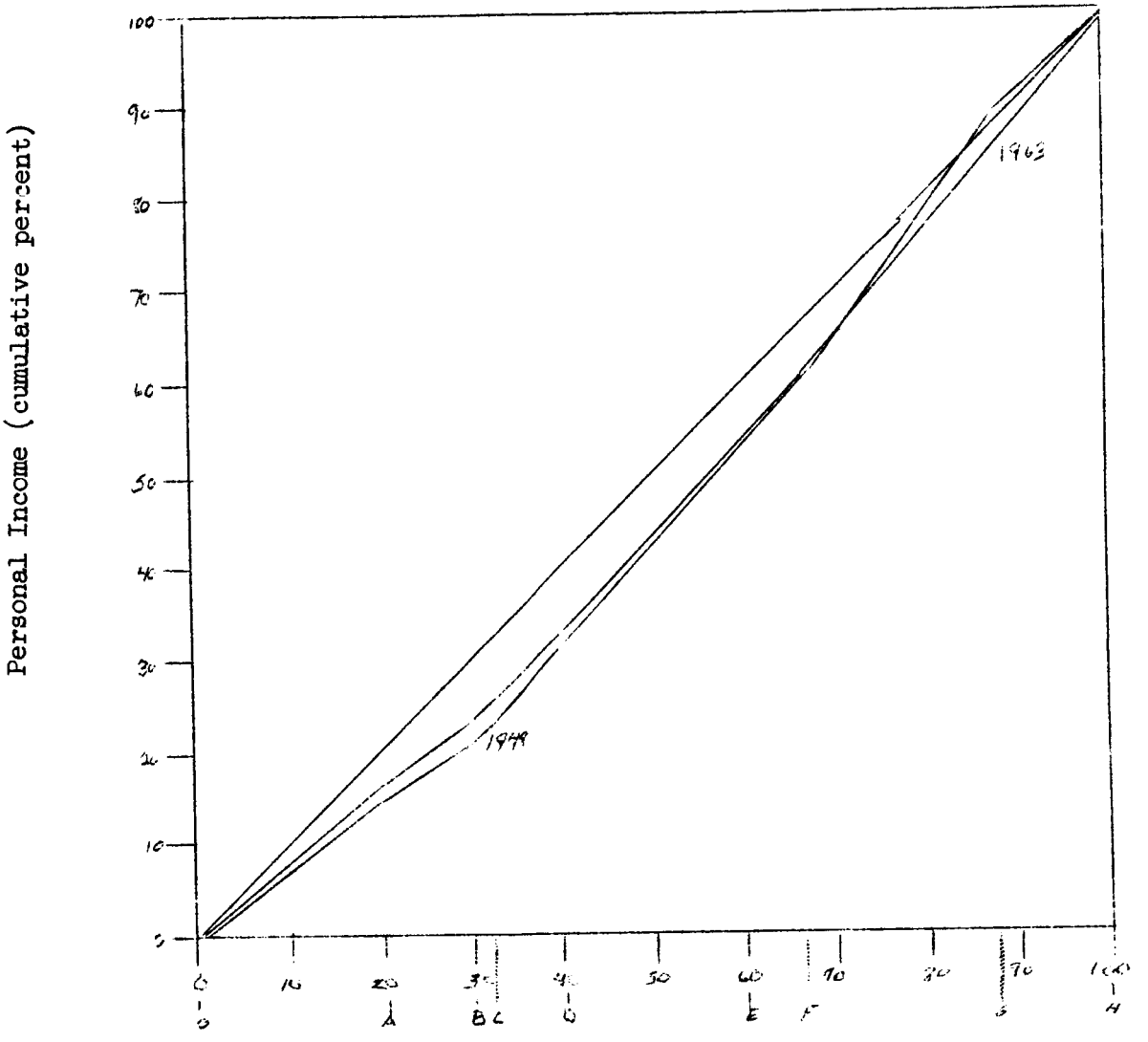
Income Regions (cumulative percent)

OA - Southeast
AB - Southwest
BC - Rocky Mountains
CD - Plains
DE - Great Lakes
EF - New England
FG - Mideast
GH - Far west

Figure 4

Regional Distribution of Personal Income

1963 and 1948



OA - Southeast
AB - Southwest
BC - Rocky Mountains
CD - Plains
DE - Great Lakes
EF - New England
FG - Mideast
GH - Far west

Footnotes

[1]Murray L. Weidenbaum, Federal Budgeting, Congress and the Federal Budget, American Enterprise Institute, (Washington, D. C., 1965), p. 60.

[2]_____, Shifting the Composition of Government Spending: Implications for the Regional Distribution of Income, Working Paper 6520, Department of Economics, Washington University, St. Louis, Mo., 1965.

[3]Ibid., p. 2.

[4]Ibid., p. 28.

[5]Weidenbaum, Federal Budgeting, Op. cit., pp. 96-99.

[6]Selma Muskin, "Federal Grants and Federal Expenditures", National Tax Journal, Sept., 1957, pp. 199-202.

[7]Office of Business Economics, Department of Commerce, Personal Income by States since 1929, A Supplement to the Survey of Current Business, 1956, p. 139.

[8]Gerhard Colm, "Guides and Procedures for Determing Federal Expenditure Programs," Federal Expenditure Policy for Economic Growth and Stability, Joint Economic Committee, Nov. 5, 1957 (85th Congress, 1st Session), p. 437.

[9]Names for Corrado Gini an early twentieth century mathematician who worked on the problem of measuring equality of income distribution. For further discussion and references see Mary Jean Bowman's, "A Geographical Analysis of Personal Income Distribution in the United States," American Economic Review, Sept., 1945.

[10]Op. cit., Weidenbaum, Shifting . . . Income, p. 30.

[11]Ben Chieh Liu, The Relationship between Regional Income Distribution and Government Defense and Non-Defense Expenditures, An unpublished paper prepared for Professor Weidenbaum's Public Sector class, Spring, 1966.

[12]Military Prime Contract Awards and Subcontract Payments, July, 1963 - June, 1964. Office of the Secretary of Defense, p. 49, Table 18.

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